佛教大学社会学部論集　第 57 号（2013 年 9 月）

Sustainable Malaria Education (2):

Preliminary Study on School Based Malaria Intervention in Elementary School Children in East Lombok (SBMI ESCEL)

Hisayoshi MITSUDA
Faculty of Sociology, Bukkyo University, Kyoto, Japan

M. I. Ansyori, M. Cenderadewi, P. B. Fathana,
I. K. Gerundug, D. Suryani, P. A. Wiguna
School of Medicine, Mataram University, Lombok, Indonesia

〔抄　録〕

インドネシア西ヌサテンガラ州の東ロンボク島では，2005 年にマラリアアウトブレイクが発生し，数多くの犠牲者を出した。しかし近年では，マラリア感染者数は減少し，犠牲者はゼロとなった。特に，マタラム大学医学部ムリヤント教授と佛教大学社会学部満田教授との国際共同研究「マラリア・コントロール・プログラム」における「マラリア感染拡大に関する社会疫学調査（CBDESS I and II, 2006–08）」の対象地区で，極めて高度なマラリア感染地域であった Pijot, Tanjung Luar, Batunampar, Sukuraja の 4 地区では，同プログラムの効果も相まって，現在，マラリア患者は激減している。

同調査報告書（社会学部論集第 45 号，46 号，48 号，50 号：2007, 2008, 2009, 2010)では，マラリア対策におけるマラリア教育の重要性が指摘され，また同地区での予備調査（2011）では，小学生の 69.3% がマラリアに関する知識が不足していることが実証された。そこで，「マラリア・コントロール・プログラム」では，2012 年から「持続可能なマラリア教育メソッド（Mataram University Method for Sustainable Malaria Education: MUM/SME）」の開発と実践プロジェクトをスタートした。本プロジェクトでは，小学生がマラリアの医学的知識を学習する独自のメソッドを開発し，Health Messenger として学校や家庭，コミュニティにおいてマラリア予防のために活躍できる教育システムの構築を目標としている。

「持続可能なマラリア教育メソッド」では，2012 年 1 月に上記 4 地区の 5 小学校の 5〜6 年生 400 名を対象に，「マラリア知識と行動に関する社会疫学調査（ESMKB AESCEL）」，いわゆるプレ調査を実施した（詳細は，社会学部論集第 56 号：1–22）。今回のポスト調査(2013 月 6 月）では「熟議型調査法」を援用し，プレ調査に続き，マタラム大学医学生 40 名が当該小学校において，①「マラリアの語り部」として，②昨夏の調査結果をアニメ化したパンフレット（「マラリア見守り隊」が活躍するストーリー）を用い，③マラリアの医学知識を解説し，④マラリア知識に関する

ゲームを実施した。その後，⑤マラリア社会疫学調査（ESMKB　AESCEL）を再度遂行し，新しいメソッドの教育効果を検証した。

小学生参加型の「持続可能なマラリア教育メソッド（SBMI ESCEL)」の成果としては，主に以下の点が特筆される。プレ調査では全問正解者がほぼ皆無であったマラリアに関する 8 つの基本項目の正解率が，ポスト調査では 55% にまで上昇した。また，マラリア撲滅への関心や意欲も格段に高まり，全項目で想定以上の教育効果がみられた。従来の官製資料の学校配布や医者による専門的指導に代え，より子供が親しみやすいよう考案されたアニメ型のパンフレットやマラリアの語り部，ゲーム（マラリア知識のコンペ）の導入によって，顕著な教育効果があることが明らかになった。今後は，ゲーム参加者に「マラリア見守り隊」認定証を贈呈し，かれらが Health Messenger（健康普及者）として活躍できるマラリア教育システムのさらなる開発を目指す。

キーワード　Malaria education, School children, Health messenger, Malaria intervention, Epidemiological survey, Malaria School Scout (MASCOT)

I. INTRODUCTION

1.1 BACKGROUND

Over the past few years, Malaria incidence in East Lombok, particularly in Pijot, Tanjung Luar, Batunampar and Sukaraja has significantly decreased. However, there are still concerns in maintaining the achieved low incidence of Malaria. Today, the comprehensive local involvement networks are highly required to achieve successful malaria eradication program.

School children have been increasingly recognized as a significant component in the community to play a key role in malaria control program. In response, in 2012, an Epidemiology Survey on Malaria Knowledge and Behavior among Elementary School Children in East Lombok (ESMKB AESCEL) was carried out by the collaborative team between Medical School, Mataram University and Faculty of Sociology, Bukkyo University. According to this study, approximately 69.3% students have poor knowledge on malaria.

Among the various approaches for school based intervention, according to Okabayashi *et al,* a successful school based intervention involves: good teaching materials and integrating malaria subject in the school curriculum (lectures and student project). Based on the above research, a preliminary study on school based malaria intervention has centered around using a comic specially developed as a main media in this study.

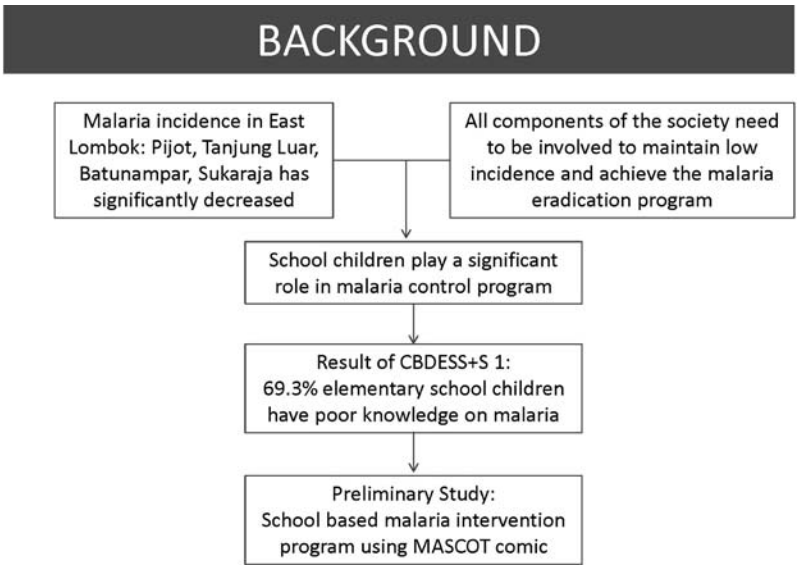


Figure 1.1 Background of MASCOT (Malaria School Scout) PROJECT: Mataram University Method for Sustainable Malaria Education: School Based Malaria Intervention in Elementary School Children in East Lombok (SBMI ESCEL)

1.2 OBJECTIVES

This study is a preliminary one to determine the increase of knowledge on malaria among elementary school children under the condition of using the comic as a learning tool.

The specific objectives of this study are:

1) To determine the level of malaria knowledge before and after intervention

2) To collect constructive feedback on the intervention method

2. METHODS

2.1 Study areas and target population

The study areas of this preliminary research are Sukaraja and Batunampar. The target population of this study was elementary school children involved in the previous ESMKB AESCEL study. The study populations are shown in the table below.

Village	Elementary School	Total
Sukaraja	SDN 2 Sukaraja	55
Batunampar	SDN 3 Batunampar	45
TOTAL		100

2.2 Study design and Method

We performed a before-after (pre and post) intervention study. Firstly, A pre-test on malaria knowledge was conducted, which was followed by an intervention method comprised of storytelling and games. The storytelling was based on the malaria pamphlet in a form of comic specially developed and designed by the researchers. Secondly, a game session was conducted in a form of individual quiz to review the student's understanding of malaria. Finally, a post-test was conducted using the same questionnaire as of the pre-test. The scheme of the intervention is shown in Figure 2–1.

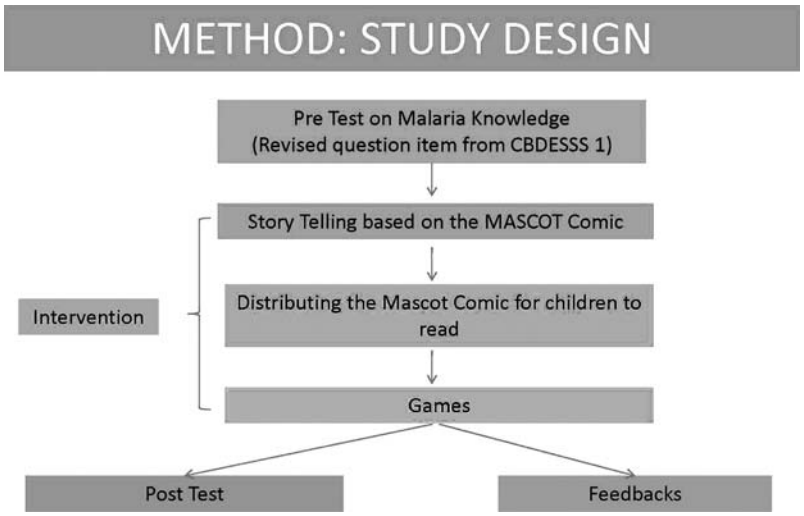


Figure 2–1 Mataram University Method for Sustainable Malaria Education: School Based Malaria Intervention in Elementary School Children in East Lombok (SBMI ESCEL)

Quantitative techniques were used for both pre- and post-test conducted through a guided interview modified from the ESMKB AESCEL study in 2012. Eight questions were derived from both the ESMKB AESCEL questionnaire and the informative explanation presented in the pamphlet that was distributed to the school children. The concise questions represent knowledge on malaria symptoms, transmission, prevention and treatment (Figure 2–2).

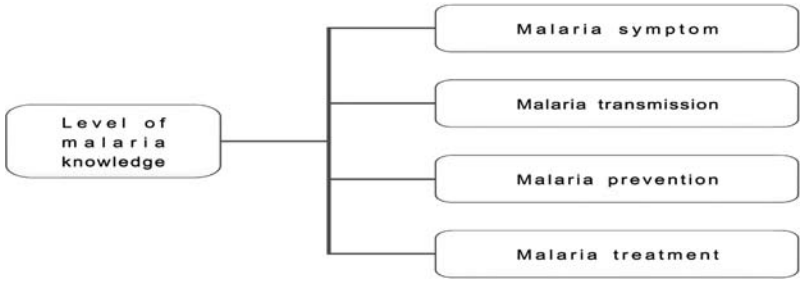


Figure 2–2 Four contracts of malaria knowledge level

In total, there were eight questions on malaria knowledge in the questionnaire and the variables of malaria knowledge were determined by four constructs i.e., malaria symptom (question 1, 2), malaria transmission (question 3, 4, 5), malaria prevention (question 6, 7), malaria treatment (question 8).

The first construct of malaria was malaria symptom, which comprises of two questions. First, respondents were asked if they knew any malaria symptom (score 1: knowing 2 or more symptoms correctly; score 0: knowing 1 symptom or none). Second, respondents were asked their awareness of malaria as a dangerous disease (score 1: knowing that malaria is a dangerous disease; score 0: all other answers).

The second construct of the questionnaire was malaria transmission, which comprises of three questions. First, whether students knew malaria was a transmissible disease or not (score 1: malaria is a transmissible disease, score 0: do not know). Second, whether students could identify the vector for malaria or not (score 1: answered mosquito; score 0: all other answers). Finally, students were asked the cause of malaria (score 1: Plasmodium; score 0: all other answers).

The third construct was malaria prevention, which comprises of two questions. First, students were asked if they knew the malaria vector breed (score 1: in stagnant water; score 0: all other answers). Second, students were asked if they knew any preventive measures for malaria (1: able to identify at least two preventive measures correctly; 0: able to identify 1 preventive measure or none).

The final construct was malaria treatment. Students were asked if they were able to identify the therapy for malaria (score 1: medication from the doctor/puskesmas/hospital; score 0: all other answers). The overall level of malaria knowledge was scaled and divided into three categories, i.e. “Good” (having 6–8 correct answers), “Moderate” (having 4–5 correct answers) and “Low” (having 0–3 correct answers).

Finally, a feedback survey was conducted to collect students’ feedback on the intervention method. The components that were considered in the survey were 1) Was the intervention method interesting?, 2) Did the comic provide a wealth of information? and 3) Which intervention method was most interesting (comic, storytelling or games)?

3. RESULTS

3.1 Knowledge on malaria

As many as 100 students (grade 5 and 6) participated in the preliminary study for a school based malaria intervention using comic as a media of intervention. The schools that participated in this study were 2 elementary schools in East Lombok (SDN 2 Sukaraja and SDN 3 Batunampar). The pre- and post- tests were conducted to determine the level of malaria knowledge.

As seen in Figure 3.1, there is a respectable increase of malaria knowledge after the intervention. While the majority of students (84%) had poor malaria knowledge before the intervention, the majority of students (55%) gained good knowledge on malaria through the intervention using the specially developed comic as a learning tool.

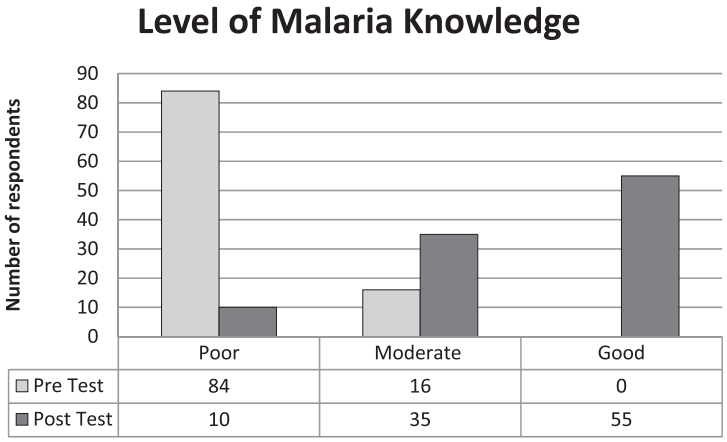


Figure 3.1　Overall level of malaria knowledge

Further analysis on the eight components for knowledge on malaria in this study shows a significant result (as seen in Figure 3.2 and Table 3.1). The components that had a respectable increase after the intervention (above 50% students were able to identify correctly) was: malaria treatment, vector breeding place, malaria as a transmissible disease, malaria as a dangerous disease and malaria symptom. This study suggests that the comic had a powerful role in transferring the most of the components of malaria

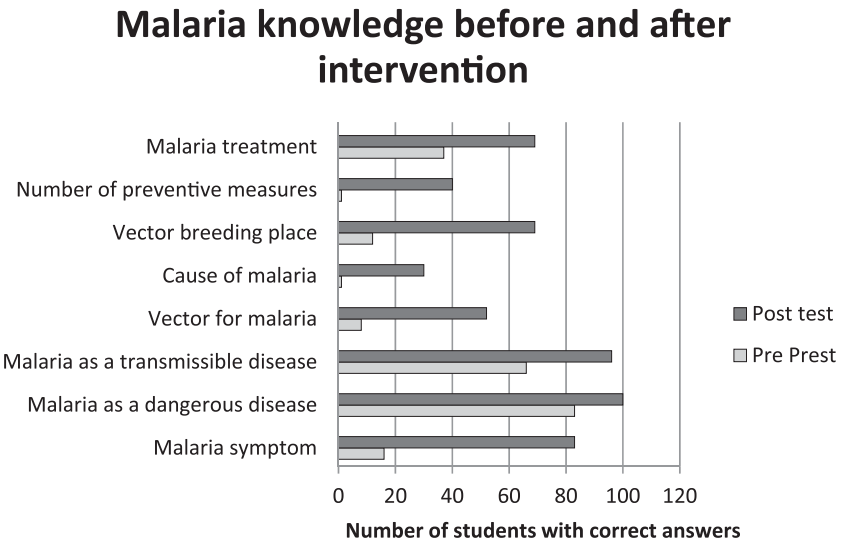


Figure 3.2　Malaria knowledge before and after the intervention

knowledge.

However, the components that had less sufficient results (below 50% students had correct answers) were: malaria preventive measures and cause of malaria. In regards to the cause of malaria, the correct answer was Plasmodium. Only 30% students were able to answer this question correctly. The majority of students were unable to distinguish between mosquito as the vector and Plasmodium as the infectious agent. It should have been yet too difficult for the students at their age to be able to draw a sharp distinction between these two.

Regarding preventive measures, against the researchers expectation on the students that they would at least have sufficient understanding on the 3 preventive measures components: human behavior modification, environmental management and vector control, only 40% of students were able to identify at least two preventive measures even after the intervention. The majority of students were able to identify only one preventive

Table 3.1　Knowledge and awareness on malaria before and after intervention

No	Questions	Batunampar (N = 45)		Sukaraja (N = 55)		Total (N = 100)	
		Pre Test N (%)	Post Test N (%)	Pre Test N (%)	Post Test N (%)	Pre Test N (%)	Post Test N (%)
1	How many symptoms associated with malaria that were able to be identified correctly?						
	1: 2 or more symptoms correct	14(31.1)	36(80)	2(3.64)	47(85.45)	16(16)	83(83)
	0: less than 1 symptom correct	31(68.9)	9(20)	53(96.36)	8(14.55)	84(84)	17(17)
2	Is malaria a dangerous disease?						
	1: Yes	38(84.4)	45(100)	45(81.82)	55(100)	83(83)	100(100)
	0: No	7(15.6)	0(0)	10(18.18)	0(0)	17(17)	0(0)
3	Is malaria a transmissible disease?						
	1: Yes	31(68.9)	45(100)	35(63.64)	51(92.73)	66(66)	96(96)
	0: No	14(31.1)	0(0)	20(36.36)	4(7.27)	34(34)	4(4)
4	How is malaria transmitted?						
	1: Mosquito	6(13.3)	26(57.78)	2(3.64)	26(47.27)	8(8)	52(52)
	0: All other answers	39(86.7)	19(42.22)	53(96.36)	29(52.73)	92(92)	48(48)
5	What is the cause of malaria						
	1: Plasmodium	0(0)	12(26.67)	1(1.82)	18(32.73)	1(1)	30(30)
	0. All other answers	45(100)	33(73.33)	54(98.18)	37(67.27)	99(99)	70(70)
6	Where does malaria vector breed?						
	1: stagnant water	7(15.6)	34(75.56)	5(9.09)	35(63.64)	12(12)	69(69)
	0: All other answers	38(84.4)	11(24.44)	50(90.91)	20(36.36)	88(88)	31(31)
7	How many preventive measures of malaria were able to be identified correctly?						
	1: At least 2	0(0)	15(33.33)	1(1.82)	25(45.45)	1(1)	40(40)
	0: 1 or less	45(100)	30(66.67)	54(98.18)	30(54.55)	99(99)	60(60)
8	How do you treat malaria?						
	1: Medication from the doctor / puskesmas /hospital	19(42.2)	37(82.22)	18(32.73)	32(58.18)	37(37)	69(69)
	0: Other answers	26(57.8)	8(17.78)	37(67.27)	23(41.82)	63(63)	31(31)

measure. This result suggests that malaria preventive measures must be considered as a critical component to be further emphasized in the intervention method in order to provide more precise information to the school children.

3.2. Method of invention and Students' perception

A feedback survey was conducted to collect students' feedback on the intervention method after the intervention (Figure 3.3 and table 3.2). According to the survey, the majority of students (95%) found the overall intervention method interesting and easy to understand. Notably, all the students made very positive comments on the specially developed comic. Storytelling based on the comic was more preferable (43%), followed by the reading of the comics on their own (34.9%).

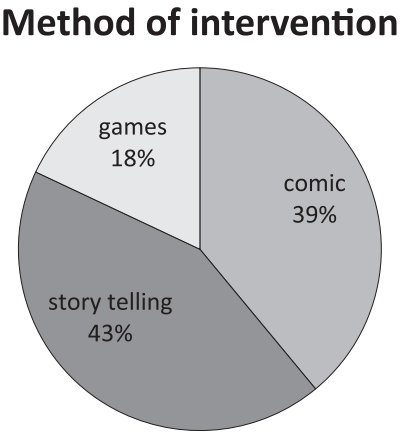


Figure 3.3　Method of invention and Students' perception

Table 3.2　Students' perception of intervention method

No	Questions	Batunampar N = 45	Sukaraja N = 55	Total N = 100
1	Was the intervention method interesting?			
	1: Yes	44(97.78%)	51(92.73)	95(95)
	2: No	1(2.2%)	4(7.27)	5(5)
2	Was the comic informative?			
	1: Yes	45(100%)	55(100)	100(100)
	2: No	0(0%)	0(0)	0(0)
3	What intervention method was most interesting?			
	1: comic	20(44.4%)	19(34.55)	39(39)
	2: story telling	18(40%)	25(45.45)	43(43)
	3. games	7(15.6%)	11(20)	18(18)

4. CONCLUSION

The preliminary study on a school based malaria intervention had satisfactory results. There was a respectable increase of malaria knowledge after the intervention. The knowledge components that have been conveyed sufficiently through the comic were: malaria treatment, vector breeding place, malaria as a transmissible disease, and malaria as a dangerous disease and malaria symptom. However, some knowledge components such as the cause of malaria (Plasmodium) and malaria prevention measures must be considered as the components to be further emphasized in the comic in order to provide more precise information to the school children.

Further data analysis should be conducted, including: analytical analysis before and after the intervention, analysis of the individual preventive measures which was most mentioned by students. The questionnaire must be also brushed up to be more concise. Other possible media of school based malaria intervention should be considered to develop a better method of conveying the precise information and knowledge to the school children. Finally, teachers involvement program must be developed to achieve sustainability on the intervention method.

In conclusion, the specially developed comic brought a new and bright vision to the school based malaria intervention. In order to achieve the practical use in the near future, method development through upgrading comic and reviewing questionnaire are strongly required.

ACKNOWLEDGEMENT

This study was financially supported by Japan Society for the Promotion Science and Bukkyo University in 2011–13.

Appendix 1: PRE-TEST AND POST-TEST QUESTIONARIE ON MALARIA KNOWLEDGE

I. STUDENT'S IDENTITY				
I.1	Sample Code	☐☐☐☐☐		
I.2	Name of student	.....		
I.3	Elementary School	1. SDN 1 Tanjung Luar 2. SDN 4 Tanjung Luar 3. SDN 1 Pijot 4. SDN 3 Pijot	5. SDN 2 Batunampar 6. SDN 4 Batunampar 7. SDN 2 Sukaraja 8. SDN 4 Sukarja	☐
I.4	Grade	1. Grade 5 2. Grade 6		☐
I.6	Sex	1. Male 2. Female		☐
I.7	Age	1. 10 years old 2. 11 years old	3. 12 years old 4. 13 years old	☐

Knowledge related to malaria symptom			
1	What are the symptom of malaria	1. Know at least 2 of the below symptom: Fever, Shivering, Sweating, Headache, Abdominal discomfort, Fatigue, Respiratory symptom 0. Only know 1 or none of the above symptoms	☐
2	Do you think malaria is a dangerous disease?	1. Yes 0. No or do not know	☐
Knowledge related to malaria transmission			
3	Do you think malaria can be transmitted from one person to another?	1. Yes 0. No or do not know	☐
4	How do you think malaria is transmitted?	1. Mosquito bite 0. All other answers	☐
5	What causes malaria?	1. Bug/Plasmodium 0. Do not know or all other symptoms	☐
Knowledge related to Malaria Prevention			
6	Where is the breeding site for malaria vector?	1. In stagnant water 0. All other answer or do not know	☐
7	What are the preventive measures on malaria	1. Able to identify at least 2 of the below answer: bed net, anti mosquito lotion, Mosquito spray, Reducing mosquito breeding sites around the house, Placing mosquito net over house ventilation 0. Identify 1 of the above answer or none	☐
The knowledge associated with malaria treatment			
8	What do you think is the treatment of choice for malaria?	1. Medication from doctor/puskesmas/ hospital 0. All other answer or do not know	☐

APPENDIX 2: INTERVIEW NOTES ON BELANTING VILLAGE, EAST LOMBOK

1. FIELD TRIP MEETING NOTE OF ELEMENTARY SCHOOL

Day/Date: Tuesday/February 12th 2013

Location: Belanting Village, Sambelia Subdistrict, East Lombok District

Institution: SDN 1 Belanting (Belanting Public Elementary School No.1)

Note: The CBDESS+S+DP Part I study has a long term goal to support the health education in elementary schools in East Lombok District.

Interview with the Principal of SDN 2 Sukaraja (Mr. Haji Mohammad Zaini Yakim):

1. Q: I see quite a number of trophies here. Is SDN 1 Belanting a school with certain academic requirements, designed for students with remarkable academic abilities?
   A: No it isn't. This school is a regular public school using the same curriculum as any public primary school in this area. This school provided the same opportunity for any children in Belanting Village area to have an education. We did have achieved some good results in some academic competition in the provincial level, such as in the Local Mathematics Olympics of West Nusa Tenggara Province, we are one of the ten best primary schools in West Nusa Tenggara Province.
2. Q: Could you tell us about yourself, where are you from and how long have you been living here in Belanting?
   A: I am originated from Poh Gading (another village in East Lombok, approximately 43 Km south of Belanting Village). I was appointed to work here as an elementary school teacher in Belanting 30 years ago, and I have been living here ever since.
3. Q: Have you ever found any of your students suffered from malaria in the past year?
   A: From my observation, the number of students suffering from malaria has been decreasing. This is due to the improvement of health care provided by the government. Now there is a Puskesmas (Public Health Centre) in this village, therefore anyone suffered from malaria can be taken to the puskesmas to get a proper treatment. In the past year, barely any students suffered from malaria.
4. Q: In your opinion, how is malaria as a health issue in the past 10 or 20 years?
   A: Ten or twenty years ago, there were so many cases of malaria here in Belanting. Many of the students, their parents, the people in the neighborhood, and even the teachers and myself suffered from malaria. It was quite a common disease back then.
5. Q: Was there any Puskesmas back then?
   A: No, there wasn't. The Belanting Puskesmas was built in 2004. Before that period of time, we have to travel to Puskesmas of Sambelia (approximately 15 Km from Belanting Village) to get pills for treatment, with no public transportation available and even the road was difficult to travel back then. Or we bought some Fansidar in the local shop to treat ourselves.
6. Q: Does this school have health units?
   A: We have the school health unit, but the implementation of the program is still lacking, due to lack of resources.
7. Q: What kind of working relation with the Sambelia Puskesmas did this school have twenty years ago?
   A: There wasn't any form of communication between this school and Sambelia Puskesmas, since it was quite far from our place here in Belanting. There was never any coordination established between the SDN 1 Belanting and Sambelia Puskesmas regarding any health

education program.

8. Q: Was there any medical doctor or midwife or nurse appointed to work in Belanting Village ten or twenty years ago?
   A: Back then, there was no medical doctor or midwife or nurse in this village.
9. Q: Was there any visit from the medical doctor from other puskesmas to share some information about health topics and diseases to the students ten or twenty years ago?
   A: No there wasn't any visit from any medical doctor regarding health education program for the students.
10. Q: Is the school health unit in this school supervised and monitored by the puskesmas?
    A: Yes it is, but the form of supervision remains unclear to us and was rarely performed in this school. The staff of the Belanting Puskesmas sometimes came to the school to share health topics information to the students and to check upon the school health unit, but there was no specific time for those visits.
11. Q: Is there any established program for the school health unit regulated by the puskesmas?
    A: Yes there is, but the sustainability of the program is poorly maintained by the puskesmas.
12. Q: In your opinion, what are the obstacles to maintain the sustainability of the school health unit program?
    A: I think one of the most important factors is the turnover rate of the medical doctor and other medical staffs of the Belanting Puskesmas are very high. Therefore it is quite difficult to maintain the implementation of the school health unit program continuously. One medical staff was trained to supervise the health school unit program implementation in primary schools in Belanting, but then that particular staff was moved to other puskesmas, and so the position was vacant again, and thus when a new medical staff was about to be appointed to execute the school health unit program he/she must be trained again. The lack of medical staffs also becomes another obstacle. The medical staff appointed as school health unit programmer also has other duties as nurse or midwife in the puskesmas.
13. Q: What is your opinion about the malaria school scout program that we plan to execute in Belanting village and other subdistrict in East Lombok?
    A: I think that is a wonderful plan, and I'm very optimistic of the result. I think it's a great idea to optimize the ability of students as health messengers.
14. Q: We plant to carry out the malaria school scout in this school; do you think it is affordable?
    A: Yes it is. We will gladly support this program.
15. Q: We would like to give certificate to the students that are appointed as the malaria school scout, to be a messenger of malaria for their family and friends. What do you think of this? Do you think there will be any obstacles to implement this program in this school?
    A: I think it is achievable but in my opinion it will be much better to ask the teachers to participate in monitoring this whole ordeal, in order to provide guidance for the students. This also will help to secure the sustainability of the program.
16. Q: The idea of this project is to promote active learning from the students, as a form of bottom-up approach instead of top-down. What do you think of this idea?
    A: I think that is a great idea. The students aged between 9 to 12 years can discuss among themselves about malaria issue, but in my opinion it will be better to include the teacher in the process.
17. Q: In the school health unit, is there any malaria promotion manual for the teacher (to

educate the teacher)?

A: There is no manual provided by the department of education for teaching malaria to teachers

Mulyanto Sensei: there were manuals of malaria eradication approaches provided by the ministry of health but those manuals were distributed only to the puskesmas, and not to the school teachers.

18. Q: Do you have any idea which method or approach do you think is the most effective way to transfer the malaria knowledge to the students, in order to promote active learning regarding malaria?

    A: I think storytelling and games will be very interesting for the students, and therefore could be used as the malaria knowledge transfer approaches for the elementary students.

2. FIELD TRIP MEETING NOTE OF PUSKESMAS

Day/Date: Tuesday/February 12th 2013

Location: Belanting Village, Sambelia Subdistrict, East Lombok District

Institution: Belanting Puskesmas (Community Health Center)

Interview with a member of Malaria Program Unit of Belanting Puskesmas (Ms. Nurul Fatmawati, female, 26 years old)

1. Q: Could you please tell us about yourself?

   A: My name is Nurul Fatmawati. I'm 26 years old; I'm a nurse working in Belanting Puskesmas. I'm also a member of Malaria Program Unit of Belanting Puskesmas. I am originated from Sambelia subdistrict (approximately 15 Km from Belanting Village). I don't live here in Belanting; I live in Sambelia and travel to Belanting when I'm on duty in Belanting Puskesmas.

2. Q: Can you tell us about the effort to prevent malaria transmission in pregnant women?

   A: We perform active case detection program to detect malaria in pregnant women, using rapid test diagnostic kit. The prevention method that can be used to prevent malaria transmission to the pregnant women is the utilization of bednets, which we also covered by distributing bednets to families with pregnant women.

3. Q: Do you have any experience with malaria in pregnancy?

   A: In January 2013 there was 1 patient and in 2012 there were 2 patients with malaria in pregnancy.

4. Q: From your experience, what kind of reaction the malaria-positive pregnant women show when the medical doctor gave them the diagnosis of malaria?

   A: From those 3 patients, two were ill with malaria classical symptoms and one was not having any malaria symptoms (detected by active case detection), so those two patients with malaria classical symptoms were not surprised when we told them that they had malaria and the other one who experienced no symptoms at all was very surprised that she caught malaria. Those patients with malaria symptoms were admitted to Puskesmas to be treated as inpatients while the patient with no symptoms were given medication as outpatient. In general, when we gave the patients the news that they are having malaria, most of the patients were not surprised as malaria is a common disease in this village.

Interview with a member of School Health Unit Program of Belanting Puskesmas (Mr.

Lalu Juniardi, male, 26 years old)

1. Q: Could you please tell us about yourself?
   A: My name is Lalu Juniardi. I'm 26 years old, I'm a nurse and I have been working in Belanting Puskesmas since 3 months ago, just after graduated from nursing school. I'm also a member of School Health Unit Program of Belanting Puskesmas. I am originated from Selong (the capital of East Lombok, approximately 68 Km south of Belanting village).
2. Q: Do you have any suggestion for us which method do you think will be the most effective way to transfer the malaria knowledge to the students?
   A: Usually we used lecturing method in sharing the knowledge of malaria to the elementary school students, which is quite boring for the children. They lost their interest pretty fast. It was quite challenging to address the students attention. So I think games and pictures would be effective to gain their attentions.
3. Q: What do you think of the idea in dividing the students into small groups and gave them malaria comic pamphlet?
   A: I think it is a great idea. I'm sure the children's attention span would be prolonged if the method is attractive such as using comic.
4. Q: What do you think of an idea to bring a malaria mascot, in form of a man in Bhutan costume, to share malaria information to the students?
   A: That will be an interesting idea, because sometimes the students were intimidated by the nurse or medical doctor in uniform.

Interview with the Head of Belanting Puskesmas (Mr. Hazrin, male, 42 years old)

1. Q: Could you tell us about yourself?
   A: My name is Nazrin, 42 years old, I have been appointed as the Head of Belanting Puskesmas since 2012. I am originated from Masbagik (another sub district in East Lombok, approximately 64 Km south of Belanting village). I live in Selong (the capital of East Lombok, approximately 68 Km south of Belanting village).
2. Q: Could you tell us about the trend of malaria incidence in Belanting?
   A: the number of malaria-positive cases has been decreasing from year to year. The highest peak of malaria incidence in Belanting occurred in 2010 (Annual Parasitic Incidence was 15 per 1000 population), then the number has decreased in 2011 and 2012. The early diagnostic testing used is rapid diagnostic test kit, and then the positive cases would be confirmed by the laboratory test with blood smear examination in East Lombok Department of Health.
3. Q: Could you please tell us about the history of this puskesmas?
   A: This puskesmas was built in 2003, and started to operate in 2004. In 2006, this puskesmas hit by a massive flood, so it needed to be reconstructed ever since. When Belanting Puskesmas first operated in 2004, there were only 1 medical doctor and a few nurses (less than 10). And now we have 39 medical staffs, consist of 1 medical doctor, 11 nurses, 9 midwives (6 midwives work in the Belanting Puskesmas itself and the other three were appointed as village midwives in some obscured part of Belanting village), and the rests is administrative staffs, public health staffs, laboratory analyst etc.
4. Q: Does the number of medical staffs in this puskesmas enough to provide sufficient medical care for all the population in Belanting village?
   A: The population in Belanting village is approximately 10,000 people. Therefore it is a very

difficult task to provide good quality medical care for all the population. Most of the medical doctors only worked here temporarily, as they refused to stay more than 2 or 3 years, since this village is quite remote. There was a certain image about working as a medical staff in this puskesmas, as there was a rumor circulating amongst medical staffs in East Lombok region that those appointed to work in Belanting Puskesmas were outcasts, those with bad track records. That was why so many medical workers refused to work here.

There were a lot of lagoons in this area that could be potential Anopheles breeding sites, and so we needed more medical staffs to organize the masses to clean and optimize the functions those lagoons, such as organizing the transformation of the lagoon as fish farming ponds (this program once promoted by the health department in coordination with the department of agriculture, as the fish will eradicate the larvae of Anopheles and will also serves as an economically valuable commodity). Belanting area used to be woods and swamps, but people opened the forest to be plantation areas.

I believe the malaria eradication program was also determined by these factors:

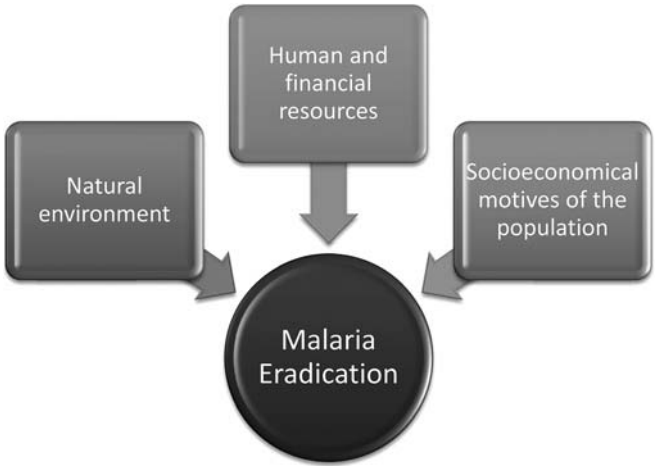
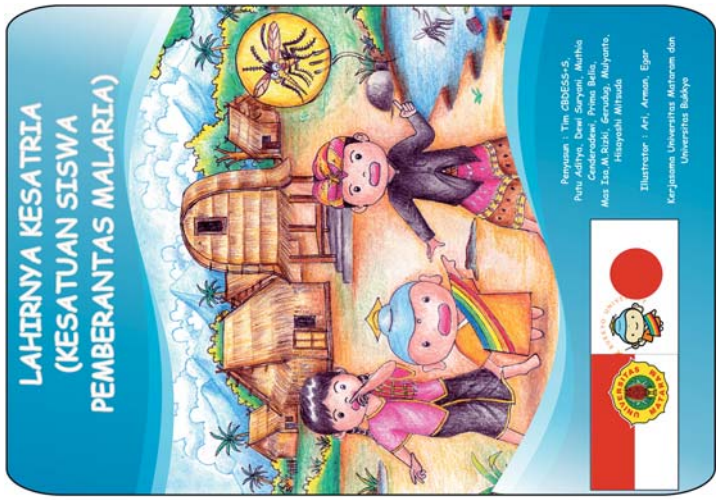


Figure A–1　Scheme on malaria eradication program

5. Q: In your opinion, is malaria education an important factor in malaria eradicating program?
   A: Yes it is, as the villagers are mostly low educated, so I think malaria education is needed, especially in children, as they are our future generation. We lay our hope of malaria eradication in their hands, and therefore I think malaria education is very important.
6. Q: We have an idea to elevate the level of malaria knowledge of the elementary students in Belanting, will the Puskesmas support it?
   A: We will gladly support the idea. Belanting Puskesmas will be very glad to support this idea in any way we can, as we also have the program to support the school health unit in every primary school. We will gladly join to supervise the school health unit sustainability, as it is also part of our obligation to promote health education. We see malaria education holds a very important role in eradicating malaria but unfortunately so far the puskesmas hasn't been able to provide all the means needed to maximize malaria promotion effort. Due to lack of human and financial resources, now we are still focusing on active case detection program, as the government stated that Annual Parasitic Incidence should be lower than 1%. So we are

very fortunate to have this idea to help us promoting the malaria to Belanting's elementary schools students.

（みつだ　ひさよし　公共政策学科）
2013 年 4 月 2 日受理


LAHIRNYA KESATRIA
(KESATUAN SISWA
PEMBERANTAS MALARIA)
Penyusun : Tim CBDESS+S
Putu Aditya, Dewi Suryani, Muthia
Candraadewi, Primo Bella,
Mas Isa M.Rizki, Gerrudug, Mulyanto,
Hisayoshi Mitsuda
Ilustrator : Ari, Arman, Egar
Kerjasama Universitas Mataram dan
Universitas Bukkyo


AYO TEMAN-TEMAN, KITA BERANTAS
MALARIA BERSAMA
KESATRIA,
KESATUAN SISWA PEMBERANTAS MALARIA


Halaman 2
Halaman 3
Halaman 4
Buttan, anak wisatawan asal Jepang sedang berlibur ke rumah temannya Laq Amat dan Aminah di Lombok Timur
Buttan, selamat datang di Lombok Timur
Ayo ayo!!!
Ayo Buttan, kita main ke rumahku
Aminah, Ayahmu sakit yah?
Kalau begitu, ayo kita bawa berobat ke Puskesmas
Iya, kata pak guru, ini disebut telih panas
Laq Amat, Aminah, ayah kalian terkena MALARIA
Malaria itu apa dok?
Laq Amat: Aminah dan Buttan lalu membawa ayah ke Puskesmas
Malaria adalah penyakit MENULAR yang cukup berbahaya
Malaria bisa DISEMBUHKAN, tapi lebih baik DICEGAH
Ayo kita cegah malaria bersama-sama!!!
Mencegah malaria caranya mudah lho, kuncinya adalah MENGHINDARI GIGITAN NYAMUK!!!
Malaria disebabkan parasit PLASMODIUM yang masuk badan lewat gigitan nyamuk jenis ANOPHELES
Nyamuk anopheles penyebab malaria biasanya menggigit pada MALAM HARI
Begini lo, cara mudah mencegah malaria
Gunakan kelambu ketika tidur
Pasang Kassa Nyamuk di Jendela
Gunakan antinyamuk bakar maupun semprot
Pakai Pakaian lengan panjang saat keluar rumah di waktu maghrib atau malam hari, contohnya mengaji
Jangan lupa meminum obat dan antinyamuk saat bermain di waktu maghrib
Setelah minum obat dari Puskesmas, Ayah Laq Amat dan Aminah sehat kembali
Nyamuk penyebar malaria suka berkembang biak di tempat air tergenang, misalnya menanga, tambak yang tidak terpelihara, dan genangan air dekat rumah.
Telur nyamuk akan berkembang menjadi jentik. Mari BERSIHKAN genangan air dekat rumah dari jentik nyamuk
Woh, ternyata kita bisa ikut mencegah malaria!!
Ayo kita ajak teman-teman di sekolah bersama-sama memberantas malaria!!